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CLAIMS

1. An avionic system and ground station for aircraft out of route management and alarm communications comprising at least an avionic device, which is fitted onboard the aircraft, with a memory unit for storing predefined information,
5 electronic processing means for processing the received information and comparing it in real time with pre-set values; interfaces for receiving information from onboard systems and sending commands to the aircraft's autopilot to take over the control of the aircraft and return it to pre-set flight levels or spatial positions; suitable sensors for obtaining data on the aircraft onboard situation ;
10 communication system for transmitting the onboard situation in real time to ground control stations and receive from the ground, or from another aircraft, appropriate instructions when predetermined events occur.
2. A management system according to claim 1, wherein said predefined information relates to flight paths, world's runways, orography of the land,
15 obstacles and the pre-set values comprise flight paths and altitudes or flight levels.
3. A management system according to claim 2, wherein where the aircraft sensors comprise surveillance video cameras and miniature transmitters, wearable by the flight crew, in order to obtain information for the avionic unit.
4. A management system according to claim 3, wherein the video cameras
20 comprise means for establishing whether they have been disabled, damaged, or are malfunctioning.
5. A management system according to claim 4, wherein the sensors comprise heart rate monitors for the pilots to be connected to the avionic unit.
6. A management system according to claim 4 comprising switches located in
25 specific points of the aircraft available to crew and passengers to obtain information for the avionic unit, and a cockpit automatic locking system.
7. A management system according to claim 4 comprising, in the event of an emergency, means suitable for externally and/or automatically disabling the collision avoidance system in accordance to predefined rules.
- 30 8. A management system as claimed in one of the previous claims, comprising means for encrypting and coding the signals exchanged between the aircraft and the ground control station not interfering with the radio band communications.

9. A ground control station suitable for interfacing with the system of claim 1 comprising at least a computer for processing the received data, a transmission-reception radio system, an encrypting and/or coding system, and an audio-visual communications system.

5 10. A method for aircraft out of route management comprising the following steps:

- Defining first data for a collision avoidance function and loading said data into the aircraft avionic unit,
- Defining second data for an alarm function and loading said data into the aircraft avionic unit,

10 - Defining third data for at least one ground control station and loading said data into the station,

- Defining interfaces,
- Defining communication channels and their respective properties,
- Defining sensors, transmitters, switches, and video cameras,

15 - Determining operating logics of the collision avoidance function and their implementation in the avionic unit,

- Determining operating logics of the alarm function and their implementation in the avionic unit,

20 - Determining operating logics of the ground control station and loading them into the station.

11. Method according to claim 9 wherein the electronic processing means process received information and compare it in real time with data referring to pre-set flight paths and allowed altitudes or flight levels, and wherein the interfaces receive flight information from onboard systems and send commands to the aircraft's
25 autopilot to take over the control of the aircraft and bring it back to pre-set altitudes or flight levels or spatial positions, and wherein sensors obtain data on the situation onboard the aircraft, and wherein the communication means and the connecting interfaces transmit information relating to onboard situation in real time to ground control stations and receive appropriate instructions from the ground
30 control station or from another aircraft when predetermined events occur.